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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/524,665	02/11/2005	Volker Hennige	265368US0XPCT	1535

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OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314		

EXAMINER	
RHEE, JANE J	

ART UNIT	PAPER NUMBER
1795	

NOTIFICATION DATE	DELIVERY MODE
10/18/2007	ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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**Office Action Summary**

Application No.

10/524,665

Applicant(s)

HENNIGE ET AL.

Examiner

Jane Rhee

Art Unit

1795

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 29 August 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) 13-28 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12, 29 and 30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date See Continuation Sheet.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date  
:6/11/07,6/20/05,3/16/05,2/11/05.

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election with traverse of Group I in the reply filed on 8/29/2007 is acknowledged. The traversal is on the ground(s) that there is no burden on the examiner to examine all the claims. This is not found persuasive because even if there is no burden there is a lack of unity between the two groups because it is a 371 restriction.

The requirement is still deemed proper and is therefore made FINAL.

### ***Double Patenting***

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

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2. Claims 1 –6 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 22,26,28-34 of copending Application No. 10575734. Although the conflicting claims are not identical, they are not patentably distinct from each other because both copending application and present application discloses a separator-electrode unit comprising a porous electrode and a separator layer applied to said porous electrode, wherein the separator-electrode unit comprises an inorganic separator layer which comprises at least two fractions of metal oxide particles which differ from each other in their average particle size and/or in the metal, the separator layer comprising metal oxide particles having an average particle size ( $D_{sub.g}$ ) which is greater than the average pore size ( $d$ ) of the pores of the porous electrode that are adhered together by metal oxide particles having a particle size ( $D_{sub.k}$ ) which is smaller than the pores of the porous positive electrode.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-6,11,12,29 are rejected under 35 U.S.C. 102(b) as being anticipated by Penth et al. (WO 99/15272, US Patent 6299778 used as an accurate English translation).

As to claim 1, Penth et al. discloses a separator-electrode unit comprising a porous electrode and a separator layer applied to said porous electrode (col. 2 lines 16-22, the composite is the separator and the carrier is the electrode), wherein the separator-electrode unit comprises an inorganic separator layer which comprises at least two fractions of metal oxide particles which differ from each other in their average particle size and/or in the metal (col. 5 lines 1-7), the separator layer comprising metal oxide particles having an average particle size ( $D_{\text{sub.g}}$ ) which is greater than the average pore size ( $d$ ) of the pores of the porous electrode (col. 4 lines 65-67 and col. 4 lines 16-17) that are adhered together by metal oxide particles having a particle size ( $D_{\text{sub.k}}$ ) which is smaller than the pores of the porous positive electrode (col. 4 lines 65-67, col. 4 lines 16-17).

As to claim 2, Penth et al. discloses wherein the separator layer has a thickness ( $z$ ) which is less than  $100 D_{\text{sub.g}}$  and not less than  $1.5 D_{\text{sub.g}}$  (col. 7 lines 36-38).

As to claim 3, Penth et al. discloses wherein the separator layer has a thickness ( $z$ ) which is less than  $20 D_{\text{sub.g}}$  and not less than  $5 D_{\text{sub.g}}$  (col. 7 lines 36-38)

As to claim 4, Penth et al. discloses wherein the metal oxide particles having an average particle size ( $D_{\text{sub.g}}$ ) which is greater than the average pore size ( $d$ ) of the pores of the porous positive electrode are  $\text{Al}_{\text{sub.2}}\text{O}_{\text{sub.3}}$  and/or  $\text{ZrO}_{\text{sub.2}}$  particles (col. 4 line 54).

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As to claim 5, Penth et al. discloses wherein the metal oxide particles having an average particle size (D.sub.k) which is smaller than the average pore size (d) of the pores of the porous positive electrode are SiO.sub.2 and/or ZrO.sub.2 particles (col. 4 line 54).

As to claim 6, Penth et al. discloses, wherein the metal oxide particles having an average particle size (D.sub.g) which is greater than the average pore size (d) of the pores of the porous positive electrode have an average particle size (D.sub.g) of less than 10 .mu.m (col. 4 line 67).

As to claim 11, wherein the unit is bendable down to a radius of 50 cm without damage, since Penth et al. discloses the same material for the separator-electrode unit desired by the applicant, it is inherent that the unit is bendable down to a radius of 50 cm without damage.

As to claim 12, Penth et al. discloses wherein the electrode is an electrode which is capable of functioning as a positive electrode (cathode) or as a negative electrode (anode) (col. 11 lines 26-29).

As to claim 29, the use of a separator electrode unit in lithium batteries is an intended use. It has been held that a recitation with respect to the manner in which the claimed particle is intended to be employed does not differentiate the claimed article from a prior art article satisfying the claimed structural limitations. Ex parte Masham, 2 USPQ2d 1647 (1987)

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 7-10,30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Penth et al. in view of Yamashita et al. (6287720).

Penth et al. discloses the electrode-separator unit described above. Penth et al. fail to disclose wherein the separator layer comprises a coating with shutdown particles which melt at a desired shutdown temperature. Penth et al. fail to disclose wherein the shutdown particles have an average particle size ( $D_{sub.w}$ ) which is not less than the average pore size ( $d_{sub.s}$ ) of the pores of the porous separator layer. Penth et al. fail to disclose wherein the shutdown particle layer has a thickness ( $z_{sub.w}$ ) which ranges from about equal to the average particle size of the shutdown particles ( $D_{sub.w}$ ) up to 10  $D_{sub.w}$ . Penth et al. fail to disclose wherein the separator layer has a porosity of from 30 to 70%. Penth et al. fail to disclose a battery comprising the electrode separator unit.

Yamashita et al. discloses a battery wherein the separator layer comprises a coating with shutdown particles which melt at a desired shutdown temperature (col. 5 lines 24-34), wherein the shutdown particles have an average particle size ( $D_{sub.w}$ ) which is not less than the average pore size ( $d_{sub.s}$ ) of the pores of the porous separator layer (col. 7 lines 47-51) and that the shutdown particle layer has a thickness ( $z_{sub.w}$ ) which ranges from about equal to the average particle size of the shutdown



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particles ( $D_{sub.w}$ ) up to  $10 D_{sub.w}$  (col. 7 lines 52-55) and wherein the separator layer has a porosity of from 30 to 70% (col. 8 lines 32-35) for the purpose of providing a battery at high performance, high safety and low cost (col. 3 lines 10-13).

Therefore, it would have been obvious to one having ordinary skill in the art at the time applicant's invention was made to provide, Penth et al. with a battery wherein the separator layer comprises a coating with shutdown particles which melt at a desired shutdown temperature, wherein the shutdown particles have an average particle size ( $D_{sub.w}$ ) which is not less than the average pore size ( $d_{sub.s}$ ) of the pores of the porous separator layer and that the shutdown particle layer has a thickness ( $z_{sub.w}$ ) which ranges from about equal to the average particle size of the shutdown particles ( $D_{sub.w}$ ) up to  $10 D_{sub.w}$  and wherein the separator layer has a porosity of from 30 to 70% in order to provide a battery at high performance, high safety and low cost (col. 3 lines 10-13) as taught by Yamashita et al.

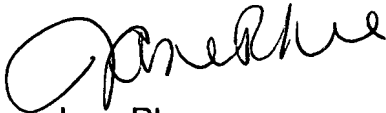
### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jane Rhee whose telephone number is 571-272-1499. The examiner can normally be reached on M-F 9-6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

A handwritten signature in black ink, appearing to read 'Jane Rhee', is positioned above the printed name.

Jane Rhee  
October 11, 2007